WATER POLICY INTERIM
COMMITTEE. 2013-14

June2013

Ground Water Assessment Prog
Montana Bureau of Mines and Geo

June 18, 2013

Ex. No. 5

"...systematically assess and monitor the state's ground water and to disseminate the information..."
85-2-902(2) MCA

- "Montana's citizens depend on ground water..."
- "ground water supplies are threatened..."
- "there is **insufficient information** characterizing..."
- "**ground water information deficiencies** are hampering..."
- "...focus on preventing groundwater contamination...but **better ground water information is required**"
- "there is a need for better coordination among those numerous units of state, federal, and local government..."

(85-2-902(1) MCA)

Program History

Recognizing that groundwater information is the key to dealing with the above issues, the Legislature established the Ground Water Assessment Program in 1991. The program is designed to improve the understanding of Montana's groundwater resources by collecting, interpreting, and disseminating essential groundwater information. This information is vital for making science based management decisions.

Program Components:

(1) **Ground Water Monitoring** — to produce and maintain long-term water-level and water-quality records,

(2) **Ground Water Characterization** — to systematically assess and document the hydrogeology and quality of the state's major aquifers,

(3) **Ground Water Information Center (GWIC)** — to make groundwater information widely available.

Program Oversight

An interagency Steering Committee selects study areas, coordinates groundwater research among state, federal, and local government units, and oversees Assessment Program progress.

Program Funding

$300,000 from RIT interest (MCA 15-38-202)

$366,000 from RIGWAT proceeds (MCA 15-38-106)

$175,886 from the Natural Resources Operations account

$841,866 TOTAL

Artesian well, Cinnabar basin.

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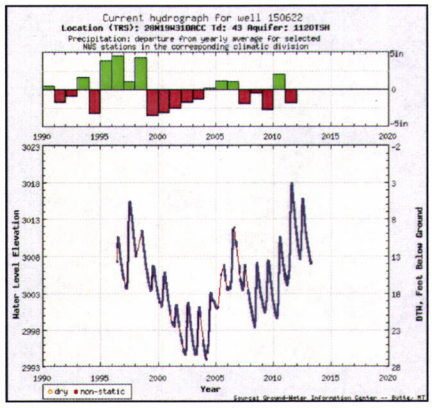
Ground Water Monitoring Network

- **Collecting Baseline Water-Quality and Water-Level Data**

Long-term data collection from 954 strategically located wells provides the data necessary to track changes in water levels and water quality in Montana 's major aquifers.

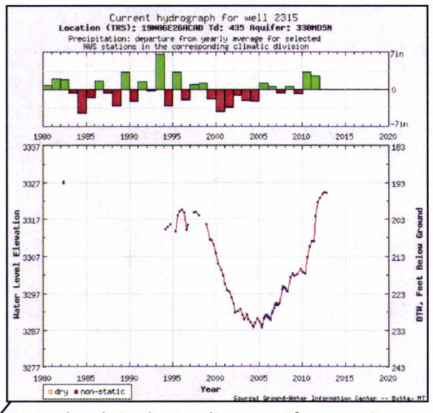
Systematic water-level measurements provide critical information about the hydrologic stresses acting on aquifers and how these stresses affect recharge, storage, and discharge.

Seasonal Trend



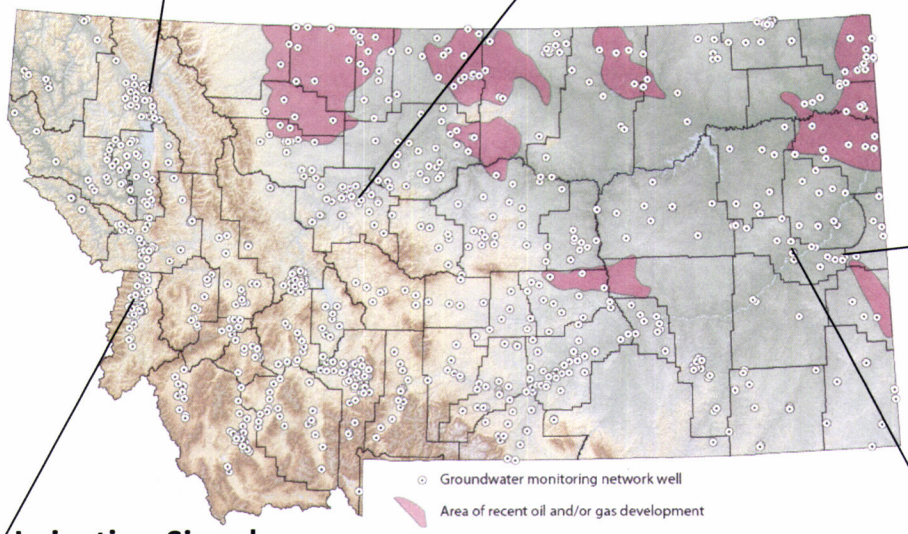
Seasonal and climatic signals are apparent in the hydrograph from a shallow alluvial well east of Kalispell.

Climate Trend

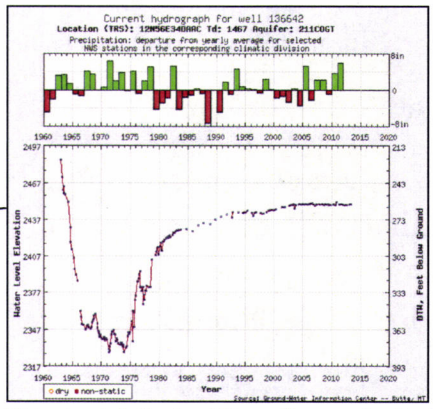


Water levels in the Madison aquifer near Great Falls are controlled by climate.

Nested monitor wells, Deer Lodge Valley.

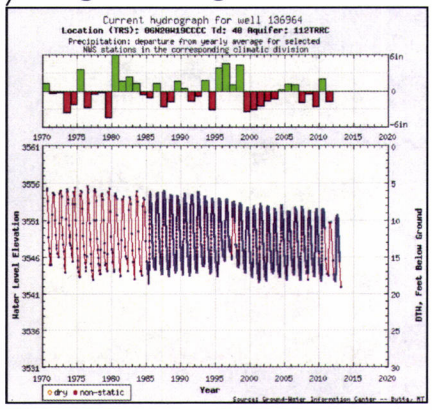


Recovery Trend

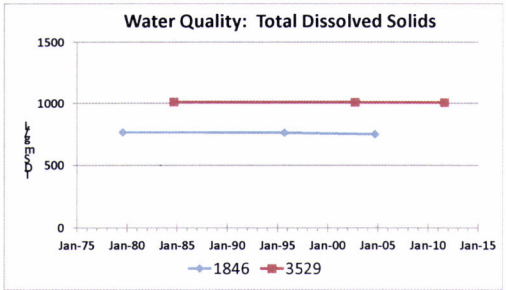


Water levels in the Fox Hills aquifer near the South Pine Oil field have recovered more than 100 ft since 1975, but remain 40 ft below 1960 levels.

Irrigation Signal

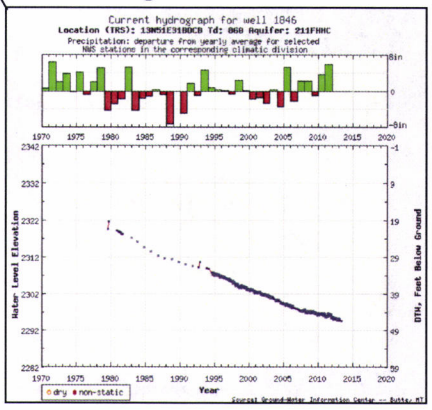


Irrigation water is the primary source of groundwater recharge to the alluvial aquifer near Hamilton.



Water quality, as measured by total dissolved solids, in the Fox Hills aquifer and alluvium shows little change.

Declining Trend



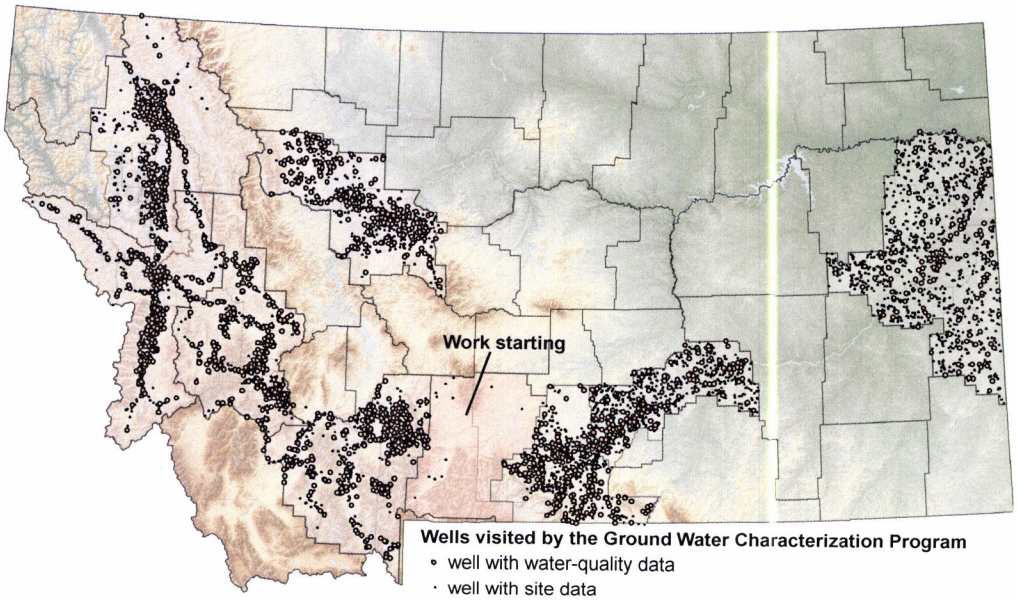
Water levels in the Fox Hills aquifer near Terry are declining at rate of about 1 foot per year.

Ground Water Characterization Program

- **Compiling information on Montana's groundwater resources**
  - ◊ Field work complete in 8 areas (22 counties)
  - ◊ High quality data from more than 8,300 wells
  - ◊ Groundwater samples from more than 2,000 wells
  - ◊ Released 60 maps and reports describing groundwater conditions

Sampling Giant Springs, Great Falls.

Data



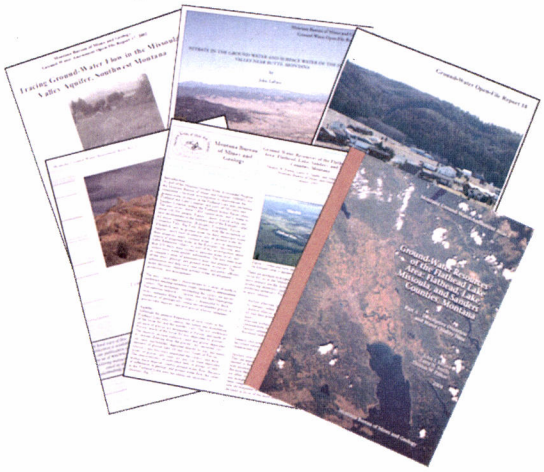
Wells visited by the Ground Water Characterization Program
- well with water-quality data
- well with site data

All data, maps and reports are available at no charge from the GWIC database.

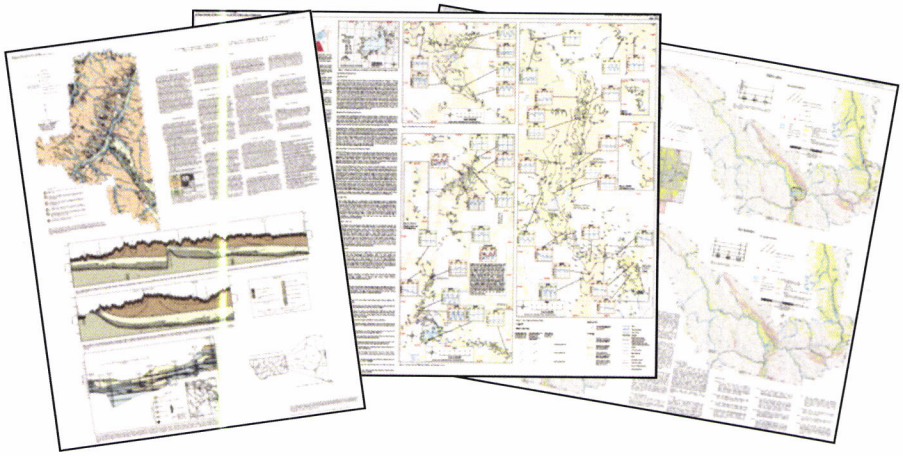
Sampling the Madison aquifer, Cascade County.

Measuring water levels in the Madison Valley.

Reports



Maps



Ground Water Information Center - GWIC

Montana's official repository for groundwater information

- **Data and other information are available online**

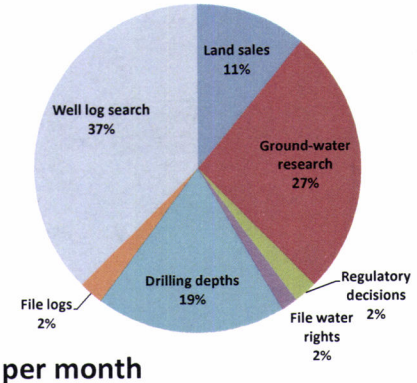
Well logs, water-quality and water-level data, hydrographs, maps, and reports are stored in the database and can be accessed online at no charge. New capabilities include an interactive web mapping application.

- **Data are used by many different groups — Who are the GWIC customers?**

More than 23,000 registered GWIC customers include people from all parts of Montana and about 3,600 individuals from other states. Out-of-state users are either private citizens who are considering purchasing land in Montana or consultants who have jobs in Montana.

Customer Groups include:

General Public: agriculture producers, landowners, students	2,785
Water Well Drillers	135
Industrial/Commercial: real estate agents, businesses	1,190
Government Scientists/Researchers	855
MBMG Research	80

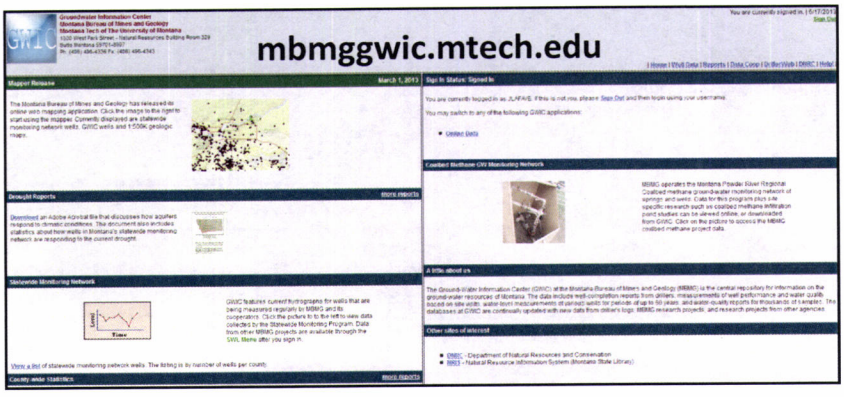


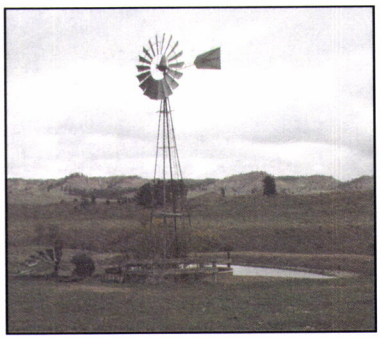
- **Data are used to make informed decisions — 36,500 direct user queries per month**

About 20 percent of requests are from those who need to determine drilling depths. The need for a new well could be related to ranching operations, but is most often related to residential development. Another 13 percent of GWIC data are used to support land sales and filing water rights. About one-third of users simply say they are looking for a well log. The groundwater research category covers many other uses including data-gathering for environmental assessments.

Well logs | Water levels | Water quality | Stream flows | Aquifer tests | Field data

Ground Water Information Center (GWIC) Database



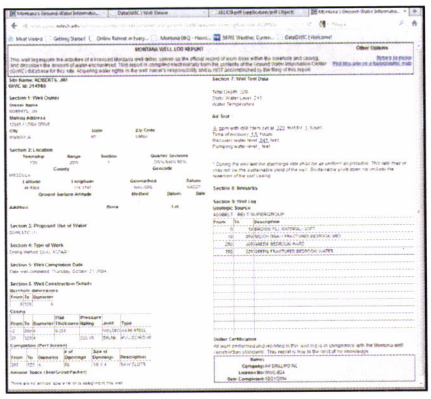


Stockwater well, Powder River County

- **Making business and government more efficient**

Drillerweb - Online filing of water well logs

Well drillers are required to file water well logs to GWIC. On July 1, 2003 MBMG launched "Drillerweb" which allowed drillers to file logs online. Between July 1, 2011 and November 30, 2012, 2,372 water-well logs (38 percent of all logs) were filed electronically through GWIC's DrillerWeb tool—saving time and money for drillers and MBMG.



Electronically filed well log.